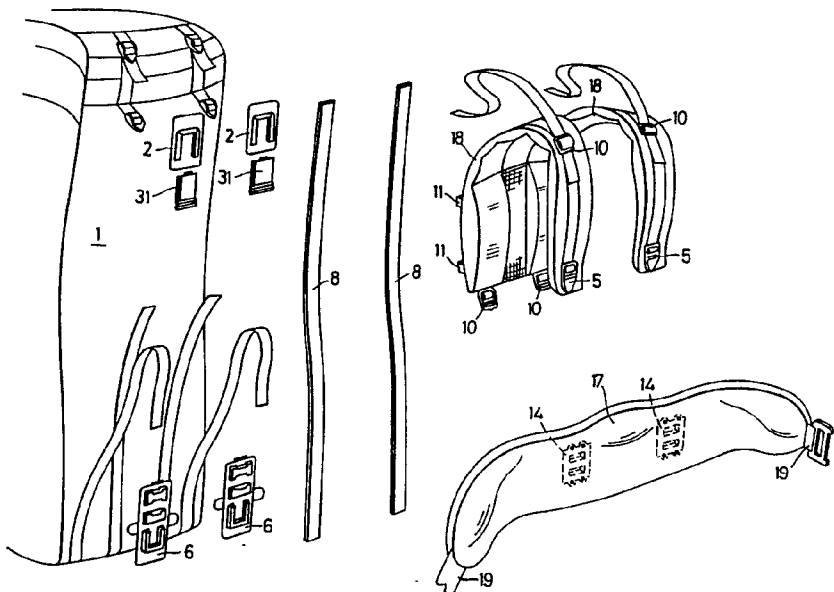


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(21) International Application Number: PCT/GB90/01577 (22) International Filing Date: 12 October 1990 (12.10.90) (30) Priority data: 8923455.3 18 October 1989 (18.10.89) GB (71) Applicant (for all designated States except US): KARRIMOR INTERNATIONAL LIMITED [GB/GB]; Petre Road, Clayton-le-Moors, Accrington, Lancashire BB5 5JP (GB). (72) Inventors; and (75) Inventors/Applicants (for US only) : PARSONS, Michael, Charles [GB/GB]; 2 Manorhouse Farm, Upper Thong, Holmfirth, Yorkshire HD8 8YL (GB). FARNWORTH, Michael, Adrian [GB/GB]; 9 Baytree Road, Clayton-le-Woods, Chorley, Lancashire PR6 7JW (GB).		(74) Agents: BARKER, Rosemary, Anne et al.; Mewburn Ellis, 2 Cursitor Street, London EC4A 1BQ (GB). (81) Designated States: AT (European patent), AU, BE (European patent), CH (European patent), DE (European patent), DK (European patent), ES (European patent), FI, FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP, LU (European patent), NL (European patent), NO, SE (European patent), US. Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: RUCKSACK WITH DETACHABLE HARNESS AND/OR DETACHABLE HIP PADS <div style="display: flex; justify-content: space-around; align-items: flex-start;">  </div>		
(57) Abstract <p>Either the harness (16) or the hip pad (17) (or both) of a rucksack are slidably mounted on vertical frame members (8), e.g. by means of respective slotted elements (11, 14), and in either case the adjacent upper or lower ends of the vertical members (8) are releasably held by keepers (2, 6) attached to the fabric sack (1), to permit removal and replacement thereof, e.g. to suit different statures, loading requirements, or personal preferences of users. Preferably both ends of the frame members (8) are releasably held by keepers (2, 6), formed of resilient but stiff plastics, but the keepers at one end are configured to provide sockets (40) from which the relevant frame member ends can only be lifted after release of the other ends from the other keepers (2), which are provided with specific closure means (31).</p>		

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RUCKSACK WITH DETACHABLE HARNESS
AND/OR DETACHABLE HIP PADS

TECHNICAL FIELD

5

This invention concerns rucksack construction.

More specifically this invention is concerned with a rucksack of a type, which is now well known for large capacity loads, and which comprises a fabric sack,
10 a supportive frame comprising at least one substantially rigid vertical member mounted at the rear of the sack, a harness comprising shoulder pads mounted on said frame and associated straps for securement to the body of a user and/or adjustment of the position of the shoulder
15 pads, a lumbar pad mounted on the sack or its frame below the shoulder pads, and hip pads at respective sides of the lumbar pad linking into a hip belt.

BACKGROUND ART

A very wide range of such rucksacks are available
20 on the market. Any particular manufacturer will offer different capacities and styles of fabric sack, e.g. long and narrow or wider and shorter, and with varying pocket arrangements and accessories, different colours or colour combinations of fabric sack, and different
25 sizes and styles of harness and lumbar/hip belt arrangement, both to suit users of different stature and to take into account the likely loading and/or user requirements for particular recreations. A further factor is the price ranges at which differing sacks can
30 be offered for sale (owing to differing manufacturing costs). In order to satisfy all potential purchaser requirements such a wide range of models is necessary at present, and this is not favorable from the point of view of either the manufacturer, or the retailer, who is

obliged to hold a larger stock and even then may still find difficulty in meeting the criteria of each customer for price/style of sack, colour, and harness/hip belt
5 size/style.

The object of the present invention is to tackle the problem just outlined, with a view to reducing the complexity of manufacture of such a large number of different models of rucksack, and also reducing the
10 problems of retailers in matching all customer requirements.

DISCLOSURE OF THE INVENTION

According to the present invention, a rucksack of the type specified above is characterised in that the
15 harness and/or the hip pads are readily detachable.

As regards the harness, the shoulder pads are mounted on the vertical frame bar or bars preferably by the bar or bars extending through one or more slotted elements at the rear of the pads, in which case the pads
20 can then be removed by releasing the bar or bars from keepers, which constitute the usual means of connection of the top and bottom ends of the bar or bars to the fabric sack.

25 The aforesaid slotted elements may conveniently comprise runners or sliders whereby the pads, when mounted, are non-incrementally adjustable in position on the bar or bars.

The aforesaid keepers are advantageously formed
30 of relatively rigid plastics material so as to provide for secure and stable bar connections to the fabric sack, and preferably also to provide attachment points for various straps.

As regards the hip pads, these are also, advantageously, mounted on the vertical frame bar or bars by the bar or bars extending through respective 5 slotted elements at the rear of the pads, such that said hip pads can be removed by releasing the bar or bars from their attachment keepers.

Various options are possible for precise construction of embodiments.

10 In presently preferred embodiments the frame bar or bars are primarily releasable from their top end keepers, and at the bottom the or each keeper simply incorporates a socket, from which the relevant bar may be removed after release at the top. Both the harness 15 (shoulder pads) and the hip pads may then be detached by sliding of their slotted elements off the ends of the bar or bars, once the latter are released or removed from their keepers.

Alternatively, the bar or bars may not be 20 detachable at the bottom, yet both the harness and the hip pads could still be slid to the top end of the or each bar for removal and replacement.

A further alternative, where there is solely top end release of the or each bar, is that only the harness 25 is removable and the hip pads are attached, either to the frame, or the sack, or indeed to the sides of the lumbar pad, in a more permanent manner.

Other embodiments could be constructed with converse arrangements. That is to say, with primary 30 release of the or each bar from the bottom keeper(s) and mere removal from socket-style keeper(s) at the top. Again, with this arrangement, both the harness and the

hip pads, if mounted on the frame bar(s) by slotted elements, can be readily removed. In the alternative, if the frame is not releasable at the top, either both
5 sets of pads could be slid off from the bottom, or else only the hip pads may be detachable, and the harness may not, in this instance.

It will be appreciated that by making use of the basic concept of the invention, namely the ready
10 demountability of the harness and/or the hip pads, assembly of different styles/sizes of fabric sack with different styles/sizes of harness or hip belt at the production stage is facilitated. Furthermore, exchange or replacement of harnesses and/or hip belt arrangements
15 is possible at the point of sale, or afterwards. For example, a retailer is able, if need be, to take a harness of correct size and appropriate style from one sack and attach it instead to a sack of the style/price/colour required by any particular customer.

20 BRIEF DESCRIPTION OF THE DRAWINGS

Specific embodiments of rucksack in accordance with the invention will now be described, by way of illustration only, with reference to the accompanying drawings, in which:

25 Fig. 1 is a perspective view of an exemplary rucksack from the rear and with the fabric sack indicated only schematically;

Fig. 2 is an exploded view of the same rucksack,
30 part of the sack being cut away and some parts of the harness webbing being omitted for the sake of clarity;

Fig. 3 is a plan view of a top keeper;

Fig. 4 is a cross-section along line IV-IV in Fig. 3;

Fig. 5 is a plan view of a lid for the top keeper 5 of Figs. 3 and 4;

Fig. 6 is a side elevation of the lid for the top keeper;

Fig. 7 is a transverse cross-section of the lid along the line VII-VII of Fig. 5;

10 Fig. 8 is a plan view of a bottom keeper;

Fig. 9 is a longitudinal cross-section along the line IX-IX in Fig. 8;

Fig. 10 is a transverse cross-section along the line X-X in Fig. 8;

15 Fig. 11 is a fragmentary enlarged detail of part of the rear side of the shoulder pad unit;

Fig. 12 is a plan view of a modified top keeper with lid;

Fig. 13 is an enlarged detail of a top strap
20 connector which could be secured to the keeper of Fig. 12;

Fig. 14 is a front perspective view of an individual hip pad for use in a modified embodiment of rucksack; and

25 Fig. 15 is rear perspective View of the same hip.

BEST MODE OF CARRYING OUT INVENTION

Referring firstly to Figs. 1 and 2, this exemplary rucksack comprises a fabric sack 1 (the detail 5 and capacity of which are unimportant to this explanation of the invention) to the rear panel of which spaced parallel metal bars 8 are mounted to provide a supportive "frame". These bars 8 are generally made of aluminum. They are secured at their top ends by 10 respective top keepers 2 and at their bottom ends by respective bottom keepers 6. Each pair of top and bottom keepers 2, 6 are precisely positioned and accurately aligned. They comprise relatively rigid plastics components, the configuration of which will be 15 described in more detail shortly.

Mounted on the bars 8 is a harness, designated generally by reference numeral 16. This comprises a pair of side by side interconnected shoulder pads 18, mounted on respective sliders or runners 11, which are 20 slidable upwardly and downwardly of the bars 8. Only the lower (scapular region) parts of the shoulder pads 18 are interconnected and the upper parts extend separately to fit over the user's shoulders. Additionally the harness 16 includes webbing which 25 provides top straps 20, connecting the shoulder pads 18 adjustably to locations adjacent the top keepers, bottom straps 21 connecting the upper ends of the shoulder pads 18 adjustably to locations adjacent the bottom keepers 6, and shoulder pad position adjuster straps 22, whereby 30 the pads 18 can be pulled downwards relatively to the bars 8, whilst the rucksack is on the user's back. The webbing accordingly, carries various connectors 5 and buckles 10, as well as the sliders 11, all of which may be of plastics and may be moulded directly onto the 35 webbing.

An integrally formed one-piece lumbar hip pad 17 is fixed to the sack 1 adjacent the bottom of the rear panel, its mid line lying centrally, between the two vertical bars 8. At each side of the central lumbar region, this pad 17 is attached to a respective bottom keeper 6 by means of the respective bar 8. In this respect, the pad 17 is provided on its rear surface with appropriately spaced slotted elements 14 through which the relevant bar 8 also fits, slotted portions of each element 14 fitting between slotted portions of each keeper 6, as will be explained further. Hip belt portions 19 extend from the ends of the pad 17.

With reference to Figs. 2 to 7, each top keeper 2 has a recess 30 for accommodating the top end of its associated bar 8. This recess is covered by a slidable lid 31 (Fig. 5 to 7), which at its upper end carries a resilient catch portion 32, which is engageable through an opening 33 in the keeper 2 at the top of the recess 30. The side edges of the lid 31 are formed as outwardly angled flanges 34 with lips which are slidably guided in corresponding guide channels 35 at the sides of the recess 30 (see Figs. 3 and 7).

It will be readily understood that the top ends of the bars 8 can be freed by disengagement of the catch portions 31, then sliding downwards and out of the lids 31. The shoulder pads SJL290990

18 can then be removed by sliding the runners 11 off the top of the bars 8.

Turning now to the bottom of the sack, the configuration of a bottom keeper 6 is shown in detail in

Figs. 8 to 10. The bottom keeper 6 has a socket portion 40 and spaced above that, two slotted portions 41 and

42, with a gap therebetween. The slotted elements 14 of the lumbar hip pad 17 are also formed with spaced apart slotted portions (see Fig.2).

5 In use, at each side of the rucksack, the slotted portions of the hip pad elements 14 fit into the respective gaps between the slotted portions 41, 42 of the bottom keeper 6, and between the slotted portion 41 and the socket 40 of the bottom keeper 6. The bars 8
10 projects downwards through all these aligned slotted portions with their end margins located in the sockets 40. Of course, upon release of the top ends of the bars 8, they can simply be lifted upwards out of the sockets 40 and out of all the aforesaid slotted portions so as
15 to free the hip pads 17, if the latter need to be removed or exchanged.

The initial assembly of the rucksack upon manufacture is simply effected by the reverse sequence of operations.

20 OTHER MODES OF CARRYING OUT INVENTION

Fig. 12 illustrates a modified form of top keeper 130 in which the lid 132 is provided with a more prominent stud 131, engageable through the aperture 133 at the top of the recess for reception of the top end of
25 a bar. Such a stud 131 can serve for direct connection of a webbing connector 15 (such as that shown in Fig. 13) at the end of the top strap of the harness, thereby avoiding the need for separate connection of the top strap 20 to the fabric sack 1, as in Figs. 1 and 2. The
30 bottom keepers could similarly be provided with studs for direct connection of similar connectors on the bottom straps 21, but that possibility is not illustrated.

Figs. 14 and 15 show another variation wherein individual hip pads 27 are provided, for location at the side of centrally located lumbar pad (not shown). In this case, each pad 27 has its own slotted element 14 adjacent its inner edge, for connection to the relevant bar 8 and bottom keeper 6. A recess 28 to accommodate the user's hip is shown on the front surface of the pad 27, and on the rear surface (Fig. 15) opposite the non-recessed area there is a stiff reinforcement web 29 to facilitate transmission of weight downwards to the user's hip. Such arrangement is the subject of a co-pending patent application of the present applicant.

The foregoing is, of course, not limitative and many variations are possible within the scope of the invention. Various possibilities have already been referred to in the introduction. Compared to the illustrated embodiment, additional possibilities are that there may be only a single bar instead of two parallel bars constituting the frame, and that the configuration of the keepers, the hip pad(s) and the connectors and their manner of interengagement may vary according to design preferences and as will readily be within the capabilities of designers in this technical field.

Furthermore in other embodiments the entire arrangement could be the reverse of that exemplified with the bottom keepers constructed to allow primary release of the bottom ends of the vertical frame members, and the top keepers comprising merely sockets for securing the upper ends of the members, thus allowing their release only after their detachment at the bottom end, or not permitting their release at all.

CLAIMS

1. A rucksack comprising a fabric sack (1) a supportive frame comprising at least one substantially rigid vertical member (8) mounted at the rear of the sack, a harness (16) comprising shoulder pads (18) mounted on said frame and associated straps (20-22) for securement to the body of a user and/or adjustment of the position of the shoulder pads, a lumbar and hip pad or pads (17,27) mounted on the sack or its frame below the shoulder pads and linking into a hip belt (19), characterised in that the harness (16) and/or the hip pad(s) (17,27) are readily detachable.

2. A rucksack as claimed in claim 1 characterised in that at least one of the harness (16) and the hip pad(s) (17,27) is mounted slidably on the vertical frame members (8), and in either case the adjacent upper or lower ends of the vertical frames members (or both) are releasably held by keepers (2,6), attached to the fabric sack (1).

3. A rucksack as claimed in claim 2 wherein both ends of the vertical frame members (8) are releasably held by keepers (2,6) but the keepers (6) at one end are configured to provide sockets from which the respective frame member ends can only be lifted after release of the other ends from the other keepers (2).

4. A rucksack as claimed in claim 1 wherein the shoulder pads (18) are provided with slotted elements (11) whereby they are slidably mounted on the vertical frame members (8), and keepers (2) are provided near the top of the fabric sack (1) for releasably securing the upper ends of the vertical frame members (8) thereto, in which respect each top keeper (2) has a recess (3) for accommodating the upper end portion of a vertical frame member (8), and a closure element (31) for retaining the

said upper end portion therein.

5. A rucksack as claimed in claim 4 wherein the closure element of each keeper (2) is a slidable lid 5 (31) for covering the recess.

6. A rucksack as claimed in claim 5 wherein the lid (31) is provided with catch means (32) for engagement with the keeper (2).

7. A rucksack as claimed in claim 4, 5 or 6 10 wherein the or each hip pad (17,27) is provided with a slotted element (14) whereby it is slidably mounted on the vertical frame members (8).

8. A rucksack as claimed in claim 7 wherein keepers (6) are provided near the bottom of the fabric 15 sack (1) for releasably securing the lower ends of the vertical frame member (2) in which respect each bottom keeper (6) has a socket (4) for receiving the bottom end portion of a vertical frame member (8).

9. A rucksack as claimed in claim 8 wherein 20 each bottom keeper (6) also has at least one slotted portion (41,42) through which the frame member (8) can locate, so spaced above its socket (40) as to enable retention of the hip pad slotted element (14), on the vertical member (8), between said slotted portion 25 (41,42) and said socket (40).

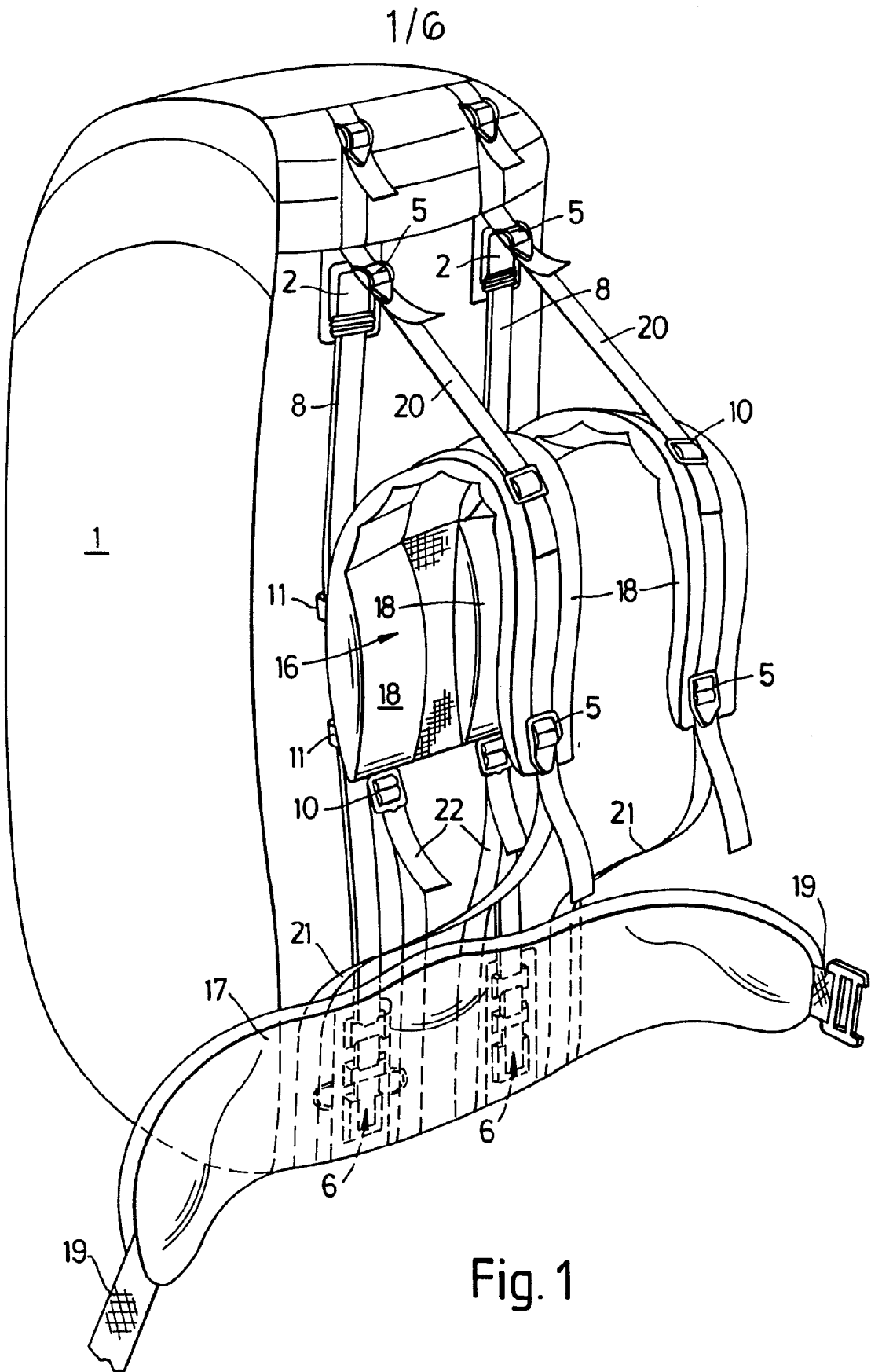
10. A rucksack as claimed in claim 1 wherein the hip pads are provided with slotted elements whereby they are slidably mounted on the vertical frame members, and keepers are provided near the bottom of the fabric sack 30 for releasably securing the lower ends of the vertical frame members thereto, in which respect each bottom

keeper has a recess for accommodating the lower end
section of a vertical frame member, and a closure
element for the recess for retaining the said upper end
5 portion therein.

11. A rucksack as claimed in claim 10 wherein
the hip pads are integral with the lumbar pad.

12. A rucksack as claimed in claim 10 wherein
the shoulder pads are provided with slotted elements
10 whereby they are slidably mounted on the vertical frame
members.

13. A rucksack as claimed in claim 12 wherein
keepers are provided near the top of the rucksack for
releasably securing the upper ends of the vertical frame
15 members, in which respect each top keeper has a socket
for securing the top end portion of a vertical frame
member.



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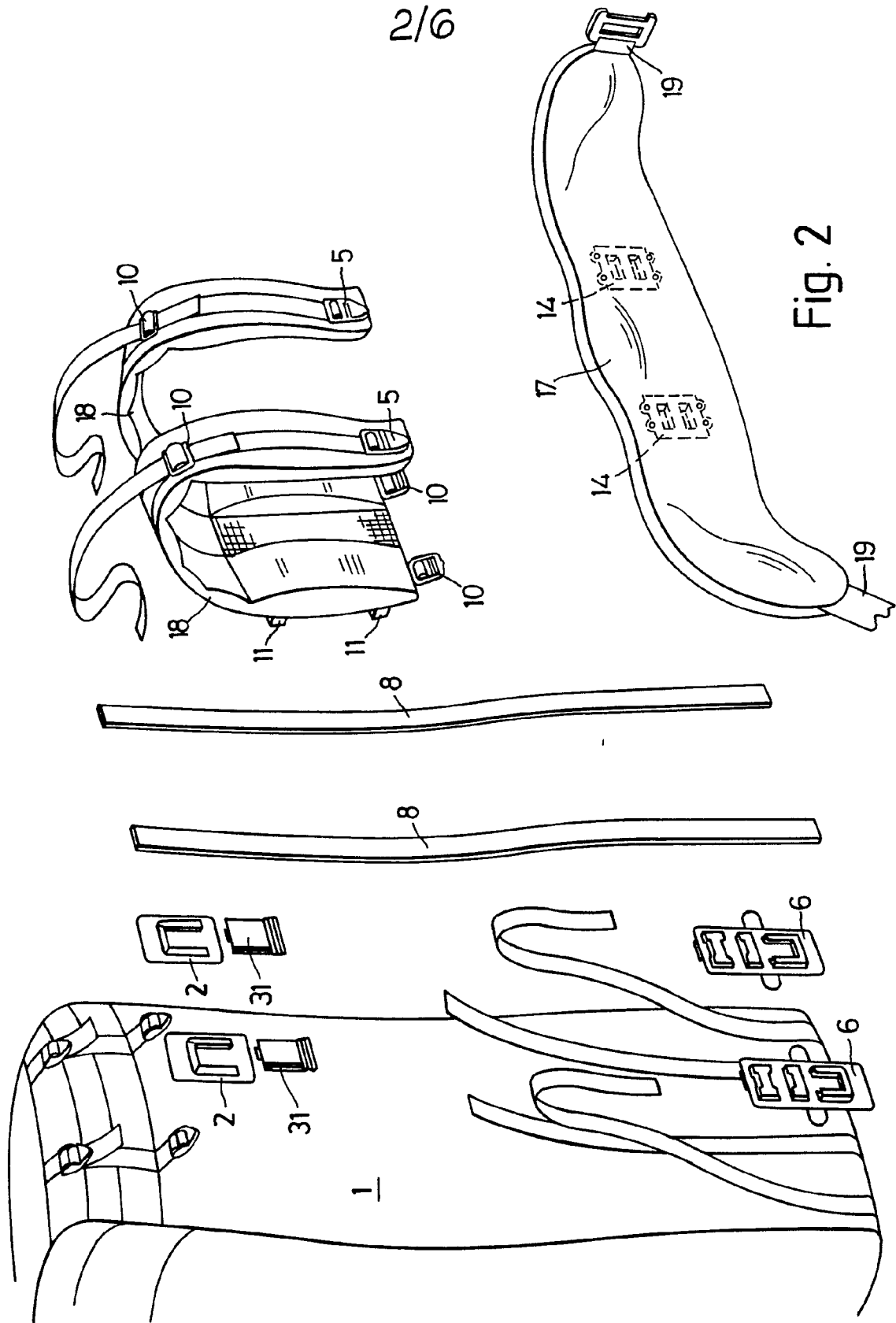


Fig. 2

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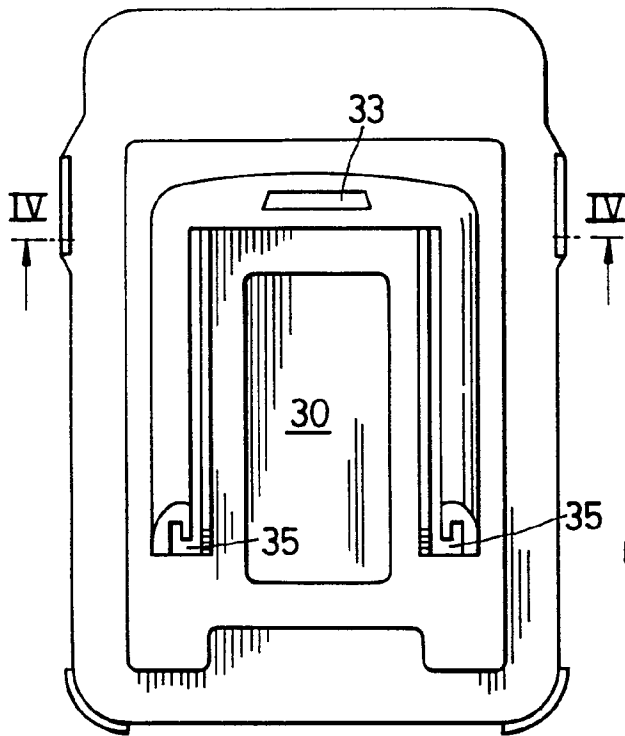


Fig. 3

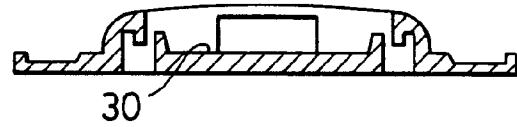


Fig. 4

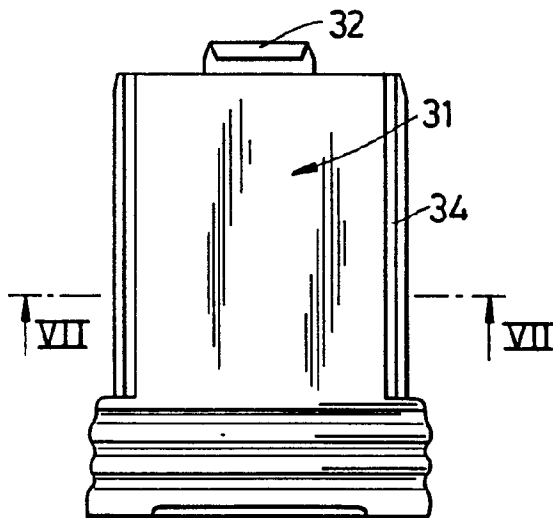


Fig. 5

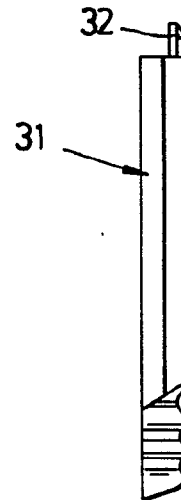


Fig. 6

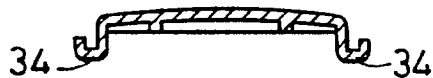
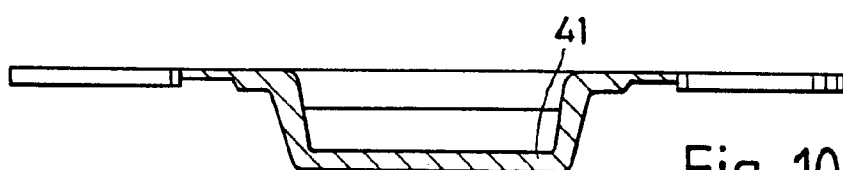
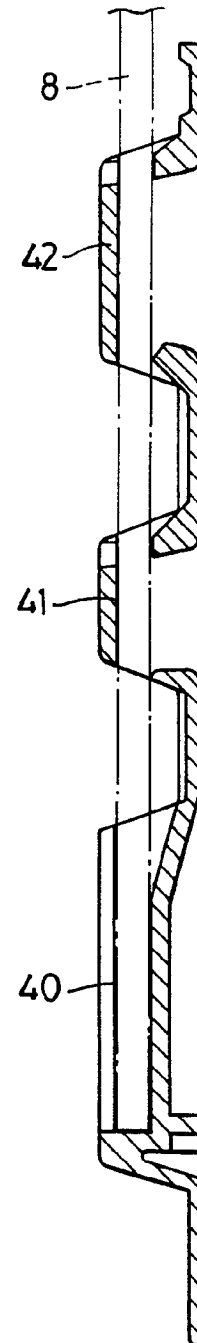
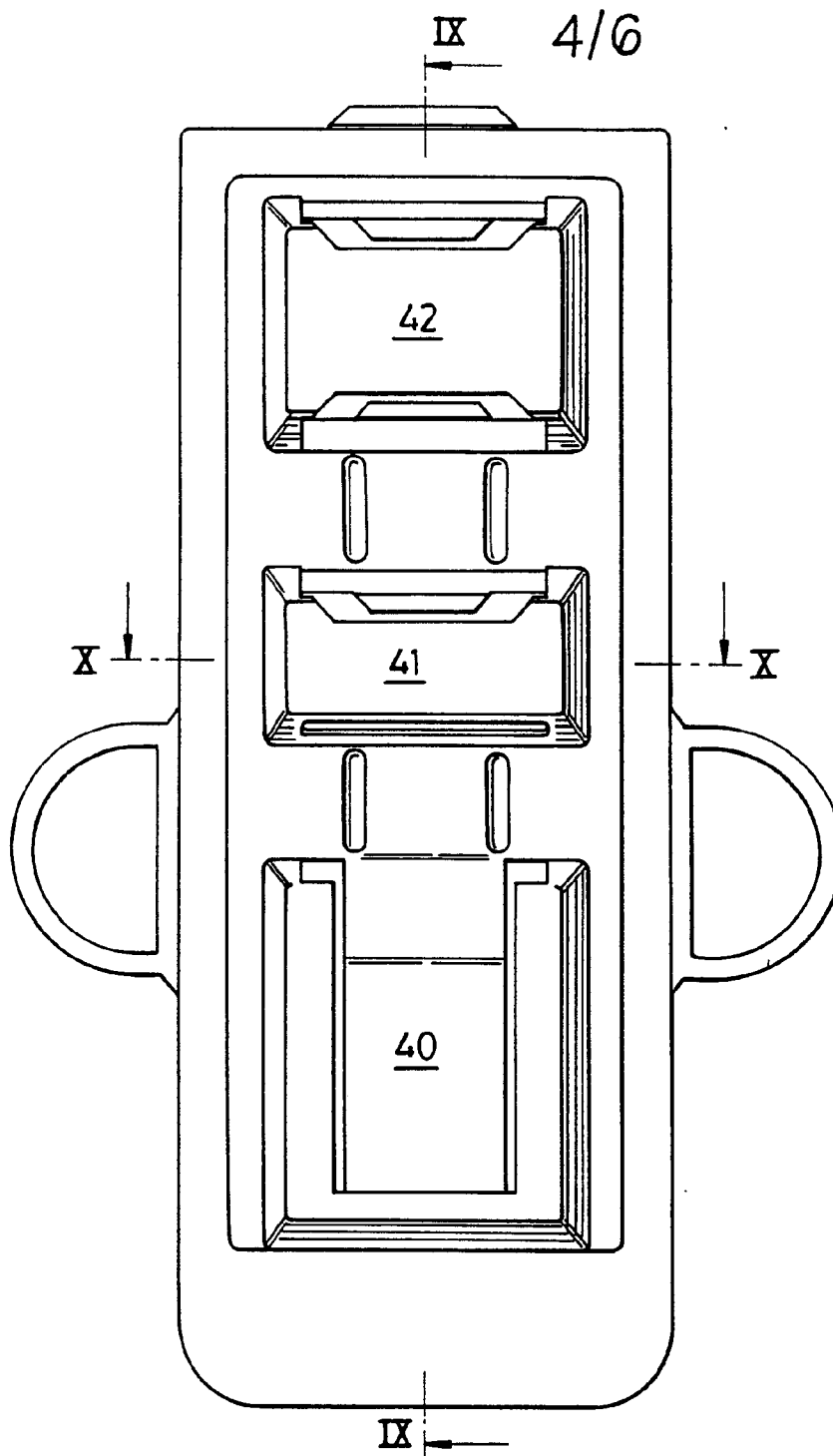


Fig. 7

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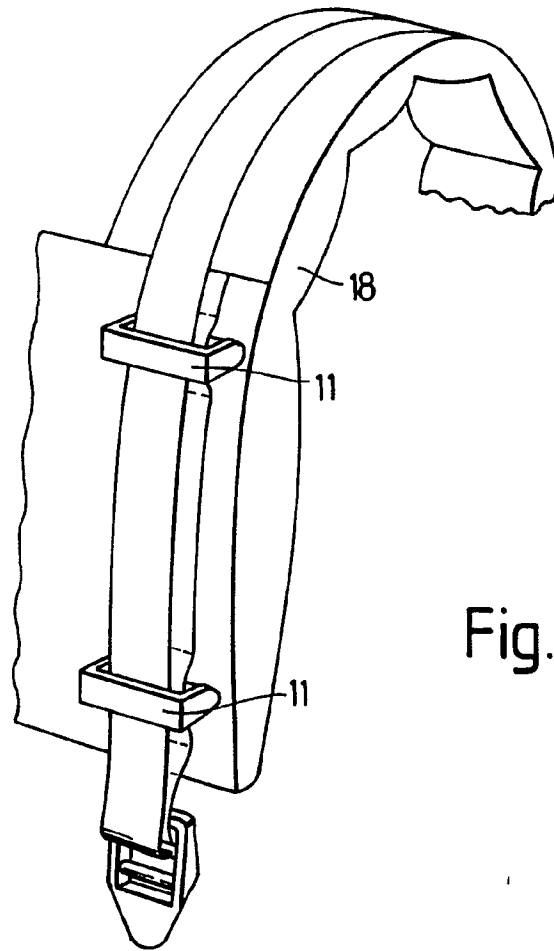


Fig. 11

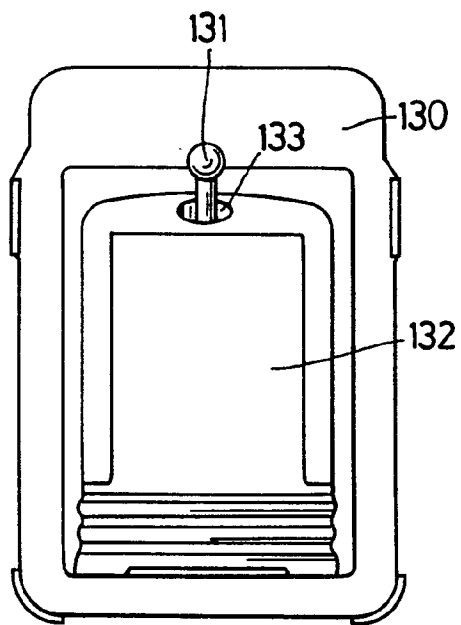


Fig. 12

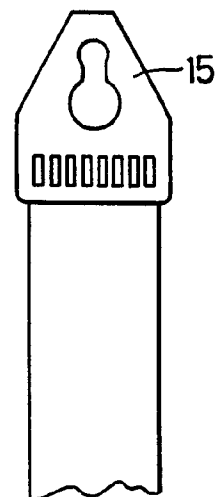


Fig. 13

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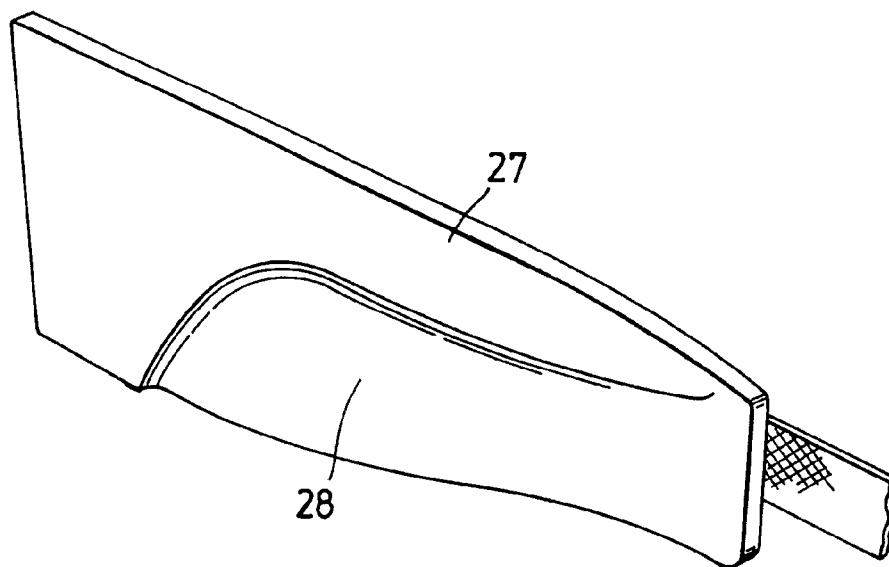


Fig. 14

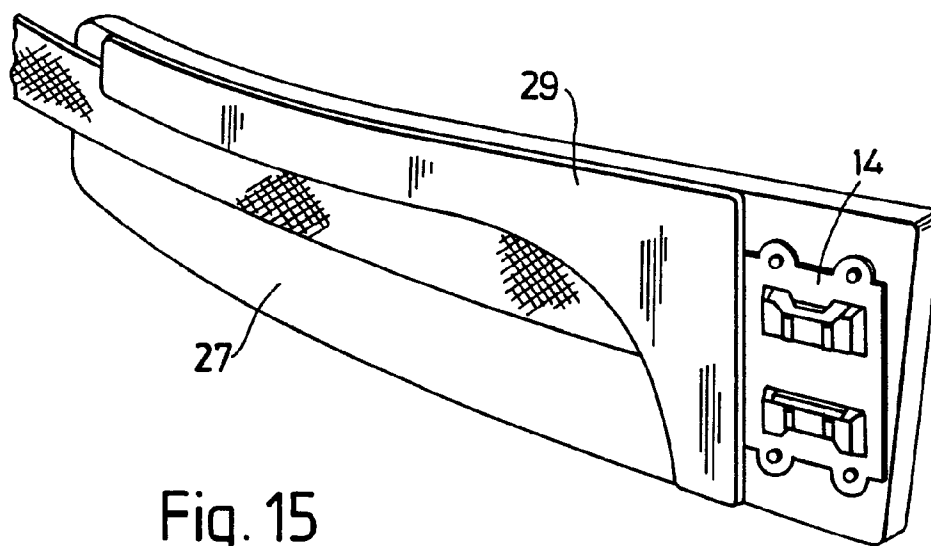



Fig. 15

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 90/01577

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC Int.Cl. 5 A45F3/04		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	A45F ; A45C	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	EP,A,273087 (PROPOSTA) 06 July 1988 see the whole document ---	1
X	DE,A,3338918 (EBERHARD) 09 May 1985 see the whole document ---	1
X	EP,A,122764 (KARRIMOR INTERNATIONAL LIMITED) 24 October 1984 see page 8, line 9 - page 13, line 4; figures 2, 6 ---	1, 2
A	EP,A,260800 (KARRIMOR INTERNATIONAL LIMITED) 23 March 1988 see the whole document ---	1, 2, 4, 12
A	EP,A,209381 (CLARK) 21 January 1987 see column 3, line 37 - column 6, line 55; figures 1-4 --- -/--	1-3, 7
<p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
31 JANUARY 1991	21.02.91	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	RIEGEL R.E. 	

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III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	US,A,4318502 (LOWE) 09 March 1982 see the whole document ---	1
A	EP,A,26092 (HAYES) 01 April 1981 see page 3, line 16 - page 5; figures 1-5 ---	1

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO.

GB 9001577
SA 40978

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
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31/01/91

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A-273087	06-07-88	None	
DE-A-3338918	09-05-85	None	
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		AU-A- 2672384	18-10-84
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US-A-4318502	09-03-82	None	
EP-A-26092	01-04-81	US-A- 4356942	02-11-82

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82